Session V:

Outreach

Session Chair:

Greg Pratschner
USFWS
Leavenworth NFH Complex

WHY OUTREACH ?

Cheri A. Anderson
U. S. Fish and Wildlife Service
Columbia Gorge Information and Education Office
122 Coho Road, Cook, WA 98605
Ph: 509/538-2242, FAX 509/538-2232, cheri_anderson@fws.gov
www.r1.fws.gov/gorgefish/

Abstract

Hatchery outreach is a tremendous tool which can work for you. Many ask the question, "Why do outreach?" In this time of high profile press about salmon, steelhead, and other fish species, it is our job to educate the public about what we are doing to solve the problems we face, not add them. Often times, this involves performing inreach, as well as outreach. If we can make positive community connections, we can make things happen. People need to know how we operate, and the importance of our product; this is where outreach comes in. We need to show our local communities that we are aware of current problems and what the roles of our hatcheries and fish health centers are. Community support and involvement are key factors in a successful outreach program.

The Information and Education (I&E) Specialist in the Columbia River Gorge provides an array of outreach services for the Carson and Spring Creek National Fish Hatcheries in the mid-Columbia River Gorge region. This position has been in existence since 1994. Responsibilities include general outreach and education services for each of the hatcheries, involvement in various local organizations, educational outreach in local school districts, and partnerships with other state, local and federal agencies. It is through these connections and commitments that we have started to gain positive support from our local communities. They view us as a learning opportunity and a source of expertise to which they can turn. The I&E Specialist performs an array of duties which are transferrable to any hatchery station. I have chosen to focus on four main outreach points: hatchery outreach, local organizations, educational outreach, and partnerships.

Hatchery Outreach

Hatchery outreach is many faceted, including everything from hatchery tours to educational displays. Special interest groups request individualized tours frequently. These range from small groups of 4-H students to larger school tours. Spawning is a busy time of year for school tours at fish hatcheries. The I&E Specialist utilizes every opportunity to expose teachers to the idea of a hatchery field trip through teacher fairs, workshops and inservice days. In addition to school tours, the hatcheries encourage public viewing of spawning through local newspaper stories, posted fliers, and large "View Salmon Spawning Today" banners on the highway. People

are usually amazed and extremely interested in viewing salmon spawning and enjoy touring the hatchery.

Each of the hatcheries utilizes a visitor area in which educational and informational exhibits are created and displayed. These are for visitors and group tours that happen to visit during the hatcheries' "off season." Every opportunity is taken to inform the visitor about hatchery practices through photo displays, videos, brochures, or conversation.

Special events are a good way to encourage the public to visit hatcheries. Recently the Carson National Fish Hatchery hosted their first annual Open House, a prime event to showcase hatchery operations. In addition, the first annual Kid's Fishing Day, in September, provided an opportunity for the hatchery to encourage local families to get out and experience fishing first hand. The Spring Creek National Fish Hatchery also hosts an annual Visitor's Weekend each September, attracting hundreds of local and out-of-town visitors. They enjoy watching and learning more about the spawning process. Local Honor Society students volunteer time to assist in the activities, and Northwest Service Academy Americorps Volunteers are recruited to help with hatchery tours.

Of course, there is footwork involved in any special event. Press releases need to be written and distributed, fliers posted, and word spread. Proper publicity is the key to success with any special event.

The I&E Specialist also maintains a website which highlights each of the Columbia River Gorge National Fish Hatcheries, National Wildlife Refuges, and the Lower Columbia River Fish Health Center.

Local Organizations

Mutually beneficial relationships have developed over time between local organizations and state and federal agencies. The I&E Specialist and Project Leaders show support for various local watershed groups by regularly attending meetings. This keeps us informed about what is happening locally, as well as providing us with the opportunity for input and at times, advice to these groups.

Involvement in local organizations includes regular attendance of the Jewett Creek Streamkeepers. This is a cooperative watershed project sponsored by Underwood Conservation District, WA Conservation Commission, WA Dept of Fish and Wildlife, U.S. Fish and Wildlife Service, and the Jewett Creek Streamkeepers.

The I&E Specialist also sits on the Wind River Technical Advisory Committee. This group addresses rising concerns over the condition of natural resources within the Wind River basin. The project uses the concept of watershed management to maintain and enhance the resources of the basin in a manner that is consistent with the goals and objectives of watershed stakeholders.

Other regularly attended monthly and quarterly meetings include the Columbia River Gorge Visitor's Association, Federal Employees Education Consortium, and the Governor's Council on Environmental Education.

Educational Outreach

Much of what we do is educational, but this section deals specifically with schools. Being involved with local schools shows our commitment to education and helps people understand what we are all about. Often times, we think our target audience are the students, but teachers and parent helpers are usually learning right along with the kids. Getting out in the schools allows them to see us in a setting where we are the teachers, providing something that could not be there without hatcheries or fish health centers.

These opportunities include: raising salmon in the classroom in order to better understand salmon life cycles by watching them develop; knowing the importance of hatchery fish and comparing that to the importance of wild fish populations; better understanding external anatomy through an easy but fun activity of fish printing; seeing with their own eyes and hands the internal anatomy of a large tule fall chinook salmon jack in a fish dissection lesson; utilizing instructional aids through our office such as life cycle displays, habitat posters, fish identification posters, fish models, etc.

In addition, we have been able to expand the number of "fin bins" that are available to teachers. These are instructional bins filled with teacher curriculum, puppets, identifications books, dissection models, posters, life stage vials, scale identification mounts, videos, brochures, and much more. Demand for the fin bins is such that they are on a check out system. Teachers are seeking to learn more, in order to pass that on to their students.

Involvement with middle and high school students includes assisting with water quality testing and stream monitoring of local watershed tributaries. The results are reported to local conservation districts. This gives the students a sense of ownership and contribution with data collection in their own watersheds. The I&E Specialist also assists with scheduling field trips and guest lectures for various advanced science classes.

Partnerships

Partnerships are an invaluable tool. As workloads seem to get larger, the people who do the work seems to be shrinking. Partnering with another agency allows participation in an event and the representation of your agency. In the Gorge, I have developed several working partnerships that have allowed the U.S. Fish and Wildlife Service to be represented at events. It is because of these partnerships that the events are able to take place.

Bass Lake Field Day is an annual three day event which educates over 100 students about habitat types and their importance. The I&E Specialist partnered with the U.S. Army Corp of Engineers

Bonneville Lock and Dam rangers and U.S. Forest Service educators to make this event possible.

Oregon Dept of Fish and Wildlife sponsors a huge fishing clinic every year to celebrate National Fishing Week in June. This year, through a partnership with Bonneville Lock and Dam rangers, the I&E Specialist was able to represent the Service in a booth about clean rivers and streams and why they are so important to fish. Over 1400 people attended the event!!

Multiple partnerships are playing a key role in planning for the Spring Creek National Fish Hatchery Centennial Celebration in September 2001. Together with U.S. Army Corps of Engineers, Washington State Parks, Washington Dept of Fish and Wildlife, the Yakama Nation, the Confederated Tribes of Warm Springs, and many other local entities, this event will be a success. Assistance and input from these partners will assure good representation of these various interests and encourage better communication with the visiting public.

With few people working in educational outreach positions, partnering is a must. Partnering is a way to work together and be involved in local and regional events allowing the general public to be informed of agency activities.

Conclusion

It is a very exciting moment to witness the first time a student watches a developing salmon egg hatch, or to see the stares on faces as students watch salmon leaping up a fish ladder. It is a sense of accomplishment to watch students analyze water quality tests, or plant small seedlings on a stream bank; making the connection of habitat needs, environmental concerns, and how that all ties back to our hatcheries and what we are doing there. How can we not think outreach is essential? Or more importantly, how can we think this is *not* a role for us?

GET WET... GET YOUR KIDS IN THE CREEK!

Rebeca J. Franco
U.S. Fish and Wildlife Service
Leavenworth National Fish Hatchery Complex
Leavenworth, WA

Abstract

With a little first hand exposure, people can play an important part in reviving our ailing aquatic resources. Watersheds and their health may be understood and appreciated by providing a few tools and a nearby body of water. Aquatic macroinvertebrates and algae can be collected and classified, fish habitat can be surveyed, water tested and riparian vegetation analyzed, measured and planted. Exploring the natural world serves to enlarge perspectives for all visitors, young and old.

Introduction

Why go through the process of organizing even a simple program to get the public in the water for a clearer view of a fish's world? People working closely with the fishery resource primarily do so for countless reasons and some of those are:

1. It's a job.
2. I always liked eating fish.
3. I'm an avid angler and I want to know them better for future fishing trips.
4. Fish are interesting critters, deserve respect and are important in this world.

If you fall into category #3 or #4, then you are probably interested in the survival of this aquatic animal. For that to happen, sensitive species like some salmonids, must have the public involved in their protection. Humans are responsible for habitat reduction and alterations, water quality compromises, and for loving the taste of a species too much. We can conduct hatchery tours and classroom presentations to achieve some appreciation of our fish friends. We can also go beyond and immerse the public into a local body of water.

It is amazing how the view changes by actually donning boots or waders and getting in the creek. There are rocks to pick up with crawling aquatic insects and undercut banks to explore. Vocabulary words like pools, riffles and glides take on new meaning. We can measure oxygen levels and learn that we are not the only creatures that need oxygen to survive. From the water, it is obvious which stream banks have riparian vegetation and which do not. Students can easily surmise what happens to water quality when it rains on eroded banks. Being in and around the

water increases knowledge, which leads to greater appreciation and an increase desire to protect the aquatic environment.

Start Simple

You may choose to borrow a few waders and offer the public an adventure in the creek during an open house at your facility. A teacher may request a field trip to your site, leaving the details to you. There are extra water testing kits around and you have them measuring pH, dissolved oxygen and temperature, noting the similarities between people and fish. There are many ways to test the waters of getting your public into the creek for a closer look.

Partners Make Life Easy

Imagine eighty anxious students and their teacher just waiting for you to help them with aquatic education. Staffing on your station is limited, so look around for potential partners. Take the path to other nearby agencies, especially those with a multitude of specialists in various fields. Also look around for private contractors who want their talents known and may help. Water quality testing companies and sometimes even the local health department have savvy personnel just waiting for an opportunity to do something different...like education!

<u>Cases in Point:</u>

The Leavenworth National Fish Hatchery Complex has two “in the creek” programs that are examples of partnerships in action. Winthrop National Fish Hatchery’s three year old program is called “Watershed Watchers.” Partners include: U.S. Fish & Wildlife Service, U.S. Forest Service, Washington Department of Fish and Wildlife, Methow Natives Nursery (riparian planting), Pacific Watershed Institute, various individual private contractors and the Methow Valley School District.

Leavenworth National Fish Hatchery’s Kids in the Creek just celebrated its six year anniversary in ‘99. The main players include: U.S. Fish & Wildlife Service, U.S. Forest Service, Chelan County Conservation District, Cascade Analytical (water testing), WA Dept. of Fish and Wildlife, and various watershed councils and school districts.

La Crosse Footwear regularly donates hip and chest waders to educational pursuits. We received ten pairs of free waders with just a letter. The name and address of the appropriate contact person is in the Additional Resources section of this paper.

These annual programs would have only remained in the dream stage without partners.

Program Ideas

The following is a list of activities and helpful equipment to give you ideas when planning your program. Since watershed health is directly proportional to fish health in our streams, the inclusion of other non aquatic learning stations is worth considering.

* Aquatic Insects: Identifying and analyzing their functional differences, anatomy and living requirements; picking up rocks or using nets to collect samples; identification with the use of hand lenses, microscopes or magnifying boxes. Other equipment: lasagne pans, tweezers, plastic spoons, recycled plastic containers and an easy insect key or pictures, student worksheets.

* Water Quality: Taking tests usually is limited to equipment and time available. The basics include: pH kit, dissolved oxygen kit, thermometer, something to measure turbidity such as a secchi disk or a turbidimeter, student worksheets.

** Stream Flow**:** Measuring the flow from different parts of the stream and relating it to water quality. Tools: 100 ft./meter measuring tape, stopwatch, oranges or pine cones for flow measurements, student worksheets.

** Riparian Plants: Studying adaptations and functions and comparing them to upland plants. If conducting transects: 100 ft./meter measuring tape, flagging for study plots, magnifying lenses, student worksheets, field guides optional. For rehabilitation work: plants, shovels, measuring devices, non harmful fertilizer. Wetland transects use the same tools mentioned above.

**** Fish Habitat: Looking at fish habitat quality by measuring pools, riffles, glides, substrate type and embeddedness, cover and other indicators. Tools: three 100 ft./meter measuring tapes, three 8' measuring sticks for depth, popcorn to watch flow, student worksheets.

***** Algae: Determining water quality by analyzing the most common forms of algae found in a nearby creek or pond, identifying them and making comparisons. Tools: microscopes with slides and covers, plastic spoons, tweezers, petri dishes, collecting containers, pictures of algae, student worksheets.

* Wildlife Sharing a Fish's World**:** Investigating wildlife evidence, sightings, and habitat. Tools: Hand lenses, field guides, binoculars.

*** Forest or Single Tree Study: How do forests contribute to clean water? This involves forest ecology or looking closely at tree/shrub/forb adaptations. Tools: hand lenses, field guides, student worksheets.

* Soil: Digging a hole to investigate a cross section of soil and identifying local soils; tools: shovel, soil color charts.

** Watershed: Can be the theme of the day involving its many aspects, including aquatic environments, riparian, forests, soil, animals, humans; can also be about watershed land management situations and decisions.

Role playing different interest groups such as: developers, timber managers, recreationists, agriculturists, etc. and presenting land management plans from each perspective to a group of "county commissioners."

Activity guides abound for working in natural resources with different ages (see Additional Resources section). Most include background information, materials or equipment needed to carry out the activity and student worksheets. When working with classroom teachers, giving them some information to disseminate to students ahead of time will really assist toward understanding some basic concepts before they get to your facility. If you are really ambitious, provide follow-up material to be used after the field trip. This stretches your one day with students to a week or even a semester!

Logistics

If the program is small with one or two of your staff and/or for a short period of time, a schedule will not be necessary. It is of utmost importance when the program approaches a few hours with multiple activities happening simultaneously and extending to three plus specialists working with the public. Everyone will know where to be when and confusion is generally eliminated (although unpredictable things can happen). Contact the author for sample schedules.

Tables, outhouses, hand washing stations, benches, directional signs, garbage cans, first aid kits and drinking water are some items worth considering when planning a larger program. You may want to contact the media, too, so they can see all the good you are doing.

When working with a school, insist they provide chaperones to accompany students. With younger children, the ratio could be as little as one to three. With students older than twelve, one to ten with two student leaders works well. The *Kids in the Creek* curriculum has a sample chaperone/student leader instruction sheet and a form to fill in student and chaperone names ahead of time.

****** *Student worksheets available from the* Kids in the Creek *curriculum (see resource section).*
**** Student worksheets available from the author.*

Just Try It

Numerous options are possible when making a thought of a field experience a reality. Every work station and situation are different. You may have an abundance of marine professionals in your office or you may be surrounded by potential partners that are range technicians. Activities will vary with what the landscape offers. When the Methow River is at high flow, for example, the Winthrop Hatchery will put kids in the ditch to look at algae and aquatic macroinvertebrates. The essential ingredient is a desire on your part to get the public involved in a fish's world for ultimate protection and longevity of our finned friends...

JUST DO IT!

Additional Resources

Farthing P., Hastie B., Weston S., Wolf D. (1992). *The Stream Scene*. Oregon Department of Fish and Wildlife. Portland, Oregon.

Franco, R. (2000). *Kids in the Creek*. U.S. Fish and Wildlife Service. Leavenworth, Washington.

Higgins, D. (1991). *Klamath River Studies for Grades 4-6.* Klamath River Educational Program. McKinleyville, California.

Murdoch, T., O'Laughlin, K., Cheo, M.. (1994). *The Streamkeeper's Field Guide*. Adopt-A-Stream Foundation. Everett, Washington.

Lynn, B. (1988). *Discover Wetlands*. Washington Department of Ecology. Olympia, Washington.

Smith, J. La Crosse Footwear, Inc., P.0. Box 1328, La Crosse, WI 54602

USDA Forest Service. (1993). *Investigating Your Environment*.. Portland, Oregon: Author.

PRESERVING OUR RICH FISH CULTURE HERITAGE FOR FUTURE GENERATIONS - D.C. BOOTH HISTORIC NATIONAL FISH HATCHERY

Stephen D. Brimm, Director
U.S. Fish and Wildlife Service
D.C. Booth Historic National Fish Hatchery
423 Hatchery Circle
Spearfish, South Dakota 57783

Abstract

Our Nation has a rich fish management heritage dating back into the early 1800's. In our profession we have been slow to realize the importance of preserving cultural resources relating to fish culture. This presentation will review the history of fish management and culture, provide a status report on the USFWS efforts at D.C. Booth Historic National Fish Hatchery, and discuss developing exhibits and outreach efforts.

MEDIA....
FRIEND OR FOE?
TIPS AND TRICKS FOR SUCCESSFUL MEDIA RELATIONS

Corky Broaddus
USFWS-Leavenworth National Fish Hatchery
12790 Fish Hatchery Road
Leavenworth, WA 98826
Ph: 509/548-6662

The news media has become one of the most powerful forces in this society. No other industry possesses more power over the way people think, feel, believe and live than the media. It has the power to build mountains or crash down cities. It can be full of hope or full of disaster. The media offers abundant opportunities for fisheries professionals, as ourselves, to meet our work objectives in creative, innovative, engaging and educational ways.

Working with the media in our local communities can and does build relationships and resources that are mutually beneficial at all levels. Don't be shy. IF correctly handled, the sharing of accurate, concisely delivered information to a local media source has the potential to gain invaluable positive results for our agency, support for our individual field station programs and credibility for current and future projects.

There are many resources within each of our government agencies available for media advice. It is important to establish a rapport with your agency media and outreach specialists. They can facilitate media training, share and provide experience and strategic direction in working with the media and come to your rescue when media stress gets over your head. It is the role of agency public and external affairs offices to maintain healthy working relationships with all members of the media in their local, state, regional and national communities. They serve as excellent advisors and liaison representatives when issues become larger and bigger in scope than most small field stations or hatcheries can handle. There are only a handful of hatchery programs in the northwest that provide information and education outreach specialists that are trained and possess the skill and ability to work effectively with the media.

If you have not yet had the pleasure of being put on the spot in front of a television camera, or under the pressure of writing a press release fifteen minutes before the deadline, or getting taped live on a radio listener call-in talk show about your agency's political views of the salmon issue, or getting ambushed by unannounced reporters while you're leading a hatchery tour for the national board of the Sierra Club, well, you just haven't experienced some of the best (or worst) memorable challenges you'll face in your entire career.

To help you through these moments of terror, I highly recommend purchasing one of the best books on the entire subject, **Winning With the News Media**, by Clarence Jones, a good informative read for every fish hatchery manager. Some of Jones' best tips and tricks are

currently being taught in various government agency and private industry media training sessions. The simple basics of media relations are spelled out in his chapter called “Strategy”. Here are his “Ten Commandments of Media Relations”:

1. Be open and cooperative.
2. Personalize you and your organization..
3. Develop media contacts.
4. Take good stories to the media.
5. Respond quickly.
6. Never say, “no comment”.
7. It’s OK to say, “I don’t know” (But, I’ll find out)
8. If you screw up, confess and repent.
9. Use the big dump.
10. Prepare, prepare, prepare.

As a public information and education specialist, I have learned many of these lessons by trial and error. I can honestly say I learn a new tidbit of tact from every media experience I encounter. Here are some basic common sense applications I would like to add to Jones’ list:

1. Be courteous.
2. Stay focused and on track.
3. Know the subject–or definitely get someone who does.
4. At all times, remember who your listener or audience is.
5. Be personable and speak in a language that makes sense. No acronyms!!.
6. Make personal visits to your local newspaper office, radio station, television station on a regular basis. Get to know your local editor and assigned reporters to your subject area.
7. Get to know your local visitor center and chamber of commerce information people.
8. Sip on a latte among your community business leaders in the local coffee shop on occasion. Some of the most important business and work issues can be discussed in these settings.
9. Stay trained. Take another media course even when you think you could teach it.
10. Utilize the expert media specialists in your agency or organization.
11. Be accountable.
12. Keep copies of everything. Create a news clipping file.
13. Remember that good reporters need you. You, too, can become a valuable contact for them.
14. Don’t waste time or attention. Make every contact count.
15. Do your homework and make absolutely certain you are truly representing yourself, your boss, your agency and its mission.
16. Never say “no comment”. It is assumed you are hiding something.

17. Be real. In a media-driven society, the reporter's perception can become reality.
18. Rehearse every question (and more!) you think you may have to cover in an interview. Run the answers by your boss.
19. Be honest. Lies never die on tape. You can be put on rewind over and over and there's no way around it.
20. Don't be wishy-washy. Remain steadfast in your views and statements.

Knowing what message you set out to set straight keeps your direction clear. What do you want the media to do for you? In many cases, the media may be the only way to reach your communication goals. To be successful with the media, each of us must understand how reporters and editors work. By maintaining good solid relationships with your media contacts you will benefit in more ways than you realize. If your local reporter views you as his ally and knows he will get a truthful story from you on a certain topic, you will find that you can influence the system more than you realize. You can win with the media and the media can win with you. This winning may be what it takes to change people's behavior in a positive way about natural resource conservation. We can make a difference.

MIGRATION GOLF:
LINKS TO THE SEA

Curt Friez
Carson National Fish Hatchery
14041 Wind River Highway, Carson, WA 98610
Ph: 509/427-5905

Abstract

Welcome to Migration Golf. Take the round trip journey from the safety of the hatchery to the Pacific Ocean and back. Start with a school of 100 young salmon smolts and see how many you can get safely back to the hatchery as spawning adults. Lose one fish for each stroke and remember to mark off 10 fish when you get trapped in a hazard (all holes) along the way. The player that returns the most adults to the hatchery is the winner.

Discussion

Migration Golf, Links to The Sea, was the brain child of Bill Thorson, Manager, Carson National Fish Hatchery. Bill wanted to tell a hatchery Pacific Salmon life history story in a way that would be educational, interesting, entertaining, and would further show that there are a variety of factors affecting salmon survival outside hatchery environments and that the decline of salmon is the result of the combined effects of many different variables. It is important that fingers not be pointed or judgements made. Bill came up with the idea of a miniature golf course to simulate the migration of hatchery reared salmon from the hatchery to the Pacific Ocean and back, with as few losses as possible. One fish would be assessed or lost for each stroke taken and ten deducted each time a ball fell into a hazard. After overcoming the skepticism of the crew, Bill approached Greg Pratschner, Manager of Leavenworth National Fish Hatchery Complex with the idea. Greg bought into it right off and agreed to partner on the project by providing funds for construction materials. Many thanks to Greg, for without his participation, the course would have remained a pipe dream.

The portable miniature golf course became the ideal tool to tell the story. The target audience for this story would be elementary children, specifically fourth graders. The course itself was designed with portability and size constraints, so it could be moved to other locations with relative ease and also for broad exposure. A trailer was purchased to store the course in and transport it. Jeff Blaisdell, Carson National Fish Hatchery's maintenance worker, constructed the course with design help and specifications from Bill. Before long, one hole (or section) after another started to take shape. Soon everyone at the hatchery had supplied input or help in the course's completion. The finished course consists of six sections.

The first section (1a) is the hatchery. Salmon raised in hatcheries are protected from many of the predators found in streams and do not need to compete for limited food and space like wild fish. This does not mean that life in the hatchery is easy. Fish eating ducks, mink and otters are examples of predators attracted to hatcheries. Disease is another cause of death for hatchery fish. But, by practicing good fish culture methods, losses to fish disease can be minimized or avoided all together. So see if you can begin your migration to the Pacific Ocean without being eaten by a duck or getting sick from fish bacteria or viruses.

Section (1b) The stream. Salmon released from hatcheries must learn quickly to avoid attacks by Northern pike minnow, walleye, sea gulls, terns and a myriad of other predators as they migrate to the Pacific Ocean. Avoid the predators if you can.

Section (2) Dams
Migrating salmon juveniles have three ways to get past the Columbia River dams. Going over the dams through the spill gates is the method least harmful to the fish, because salmon carried over dams by spilled water avoid the turbines. Fish bypass systems use large screens to guide migrating fish to pipes around the dams. The third way past dams are to go through the turbines. Some fish are injured or disoriented as they pass through the turbines making them easier targets for the predators waiting below the dams. Which route will you take?

Section (3) Ocean Conditions
Recent El nino' (a weather pattern) events have caused ocean temperatures to rise several degrees creating warmer ocean waters where salmon live. The warmer water greatly decreases the amount of food available for salmon and lets predatory fish normally found in the southern part of the ocean move into areas used by young salmon. If you are lucky, you will find La Nina' and have favorable ocean conditions. If not, well it's been good knowing you!

Section (4) Dams
Adult Salmon returning to spawn in the streams where they were born use fish ladders to get past the Columbia River dams to complete their migration. The fish ladders can be difficult to find especially in high water years. Salmon sometimes make their way around dams only to fall back and have to try again. How many times will you need?

Section (5) Homing
Salmon returning to spawning grounds in the Columbia Basin are harvested by Native Americans and sport fisher persons. See if you can escape capture in the Indian gill nets and dodge the sport fisher persons. If you miss the mouth of your home stream, as salmon sometimes do, you will have to backtrack to find it. Make your way into the hatchery adult holding pond and your migration is complete.

The miniature golf course was designed as an educational tool to tell the story of hatchery Pacific Salmon. The course tells the story as you play it. Having fun while learning seems to make

people learn the fate of hatchery salmon all the better. As you lose fish along the way, it gives you a real appreciation for the few fish that do survive to spawn. The course has been a huge success at several events. The trial run was at Carson Elementary School for fall carnival. Here it was estimated more than three hundred children and adults played. This is where we learned it's best to have a guide at each section to answer questions and explain the section. Next the course was set up for Carson National Fish Hatchery Open House, even though the weather was terrible, almost all visitors played. The course was also set up in Portland at the Regional Office. Here BPA and Interior employees played, and the course received rave reviews. The course was then transported to Winthrop National Fish Hatchery for a children's fishing event. Bill said, "the course was a huge success there." We then set the course up for Carson National Fish Hatchery's Children's Fishing Day. Another two hundred or more people played it. The largest event so far was the Wenatchee River Salmon Festival at Leavenworth National Fish Hatchery. Here an estimated one thousand people of all ages played and played.

We realized people were learning more about the tedious life a salmon lives by their comments after completing the course like, "I didn't realize what all they go through" or "I only had a couple of fish left" or "can I start over all my fish are dead." Most people come away with a new understanding about factors that control salmon survival. Some people just like to play the game and play it over and over.

One interesting thought is that once the salmon leave the hatchery, they are subject to the same factors wild fish are, so a wild fish course could easily be developed showing the fishes life in its home stream before it out migrates with the selection factors at work there.

IDEAS FOR DEVELOPING "FIN BIN" EDUCATION OUTREACH ACTIVITIES

Connie R. Grant
U.S. Fish and Wildlife Service
Dworshak National Fisheries Complex,
P.O. Box 18, Ahsahka, ID 83520
Ph: 208/476-4591

Abstract

As a graduate student at the University of Idaho seeking a Masters in Education, I spend many hours in campus classrooms and in front of my computer wondering how to "plug-in" my (very) specific anadromous fish content area into lesson plans chiefly designed for the average elementary and middle school curriculum. While my fellow teaching and education scholars are adapting content areas such as math, history, and English to fit readily within lessons aimed at improving reading skills or vocabulary, I wonder to myself, "How can I make fish relevant here?" "Will fish really matter to the student if they follow through on this lesson?" "Can learning about anadromous fish help a child with their vocabulary or reading?" All of these questions would leave my head literally swimming with fish!

Discussion

The Fin Bin was originally developed in 1994 by Rachel Little at Leavenworth National Fish Hatchery. Later, Rebeca Franco continued the project by writing Fin Bin curriculum. Most recently, Judy Maule wrote another grant to produce additional Fin Bins for U.S. Fish and Wildlife Service hatcheries in the Pacific Region. Used today by many hatcheries for education outreach, the Fin Bin contains an assortment of fisheries-related tools for learning in the classroom. Items such as models, books, videos, puppets, and posters provide hands-on opportunities for students to learn about fish. The only problem is that the newest Fin Bins did not have many lesson plans, or what I call "recipes for learning." These "recipes for learning" are basically what a teacher will look for in order to implement Fin Bin tools into actual educational activities. With all this in mind, I designed lesson plans that integrate the various types of "multiple intelligences," or basic "learning styles" of students. "Learning style" pertains to the different ways that pupils comprehend information on an individual level—such as linguistically, spatially (visual thinking), logically (math/critical thinking), musically, intrapersonally (inner thinking), interpersonally (people thinking), or kinesthetically (body language).

For hatchery managers who don't have the time or staff to work on developing "learning recipes" for the Fin Bin, I recommend recruiting outside helping hands. This can be relatively simple. There are many university and community college student volunteers, or interns, in natural resources and education training. Some are seeking teacher certification in Earth Science,

Biology, and other content areas that are clearly linked to fishery resources. Some students in content areas such as Social Studies and Economics may also be interested in environmental education. Many are seeking outside work study projects to earn extra class credit, with the approval of a course professor. Another option may be to seek out high school students who are in "gifted and talented" programs and wish to do assignments that challenge their present school curriculum. Other resources for outside help are young people and former teachers from your local community who are involved in natural resource education.

There are several Fin Bin lesson plans that I have developed to get you started. You may wonder how I came up with these ideas. Many came from "plugging-in" what I know about anadromous fish into teachers' lesson plans that were assigned to me by my U of I professors. Some came from the "top of my head," and others came from revamping old information entombed in the farthest reaches of Susan Sawyer's dusty bookshelf. Here are the current "recipes for learning" intended for elementary, middle school, and secondary students:

- Salmonid Life Cycle Poster and Play (presenting a salmonid life cycle pictorially or by enactment)
- Find Your Salmonid Water Address (conducting a salmonid migration simulation through a sense of smell)
- Magic Square Games (learning fish-related vocabulary while having fun solving a number puzzle)
    - –Anadromous Fish Magic Square Game
    - –Fish Anatomy Magic Square Game
    - –Fish Hazards Magic Square Game

Of course, to specify a lesson to concur with elementary, middle school, or secondary standards depends largely on your local school district. Other lesson plans I will be working on in the near future are:

- Crossword Puzzles
- Coloring Activities for Elementary Students
- Current Events and Fisheries Issues
- Are We Fish-Friendly? / Fish Impact Self-Assessment
- Internal / External Fish Anatomy Origami / Paper Folding

In conclusion, I would like to convey that the cost of implementing lesson plans for the Fin Bin, or other similar educational tools, is minimal—a little footwork, creativity, time, and a certain amount of enthusiasm. If you have the least bit of doubt about the learning quality of a lesson plan, take it to a teacher for evaluation. Most would be happy to help out in exchange for a classroom visit or hatchery tour. I would also like to express that these generic Fin Bin "recipes for learning" will accommodate the learning styles of most elementary and middle school students, and are ready-to-go as adaptable learning tools. Some pupils *(and that means all of us because we are all learning all of the time)* may use a combination of learning styles, and some may use primarily one to retain most of the knowledge we are exposed to—THAT concept makes us all unique.

Keep in mind that there are education outreach people such as myself to call upon that will be more than willing to share existing lesson plans or ideas. The trick is to not loose sight of the big picture—we are all in the fish business together, whether it be as a manager, fish culturist, or outreach specialist. Fisheries education is critical to fostering public support of our programs in the coming century.